

Understanding the Consumer Price Index: Answers to Some Questions

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Q U E S T I O N S & A N S W E R S

Introduction

The continually growing number of uses and users of the Consumer Price Index (CPI) have generated an increasing number of questions about the CPI. Although the Bureau of Labor Statistics (BLS) has provided extensive material to the public describing the CPI, much of this material has been quite technical. BLS has developed this pamphlet, therefore, to:

- Answer frequently asked questions about the CPI
- Familiarize users of the CPI with some of the most important of the new procedures introduced with the 1998 CPI Revision
- Help users of the CPI better understand and use it

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What is the CPI?

1

The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

How is the CPI used?

2

The Consumer Price Index affects nearly all Americans, because of the many ways it is used. Three major uses are:

As an economic indicator. The CPI is the most widely used measure of inflation and is sometimes viewed as an indicator of the effectiveness of government economic policy. It provides information about price changes in the Nation's economy to government, business, labor, and other private citizens, and is used by them as a guide to making economic decisions. In addition, the President, Congress, and the Federal Reserve Board use trends in the CPI to aid in formulating fiscal and monetary policies.

As a deflator of other economic series. The CPI and its components are used to adjust other economic series for price changes and to translate these series into inflation-free dollars. Examples of series adjusted by the CPI include retail sales, hourly and weekly earnings, and components of the national income and product accounts.

An interesting example is to use the CPI as a deflator of the value of the consumer's dollar to find its purchasing power. The purchasing power of the consumer's dollar measures the change in the value to the consumer of the goods and service that a dollar will buy at different dates. In

other words, as prices increase, the purchasing power of the consumer's dollar declines.

As a means of adjusting dollar values. The CPI is often used to adjust consumers' income payments, for example, Social Security; to adjust income eligibility levels for government assistance; and to automatically provide cost-of-living wage adjustments to millions of American workers.

The CPI affects the income of almost 80 million persons, as a result of statutory action: 48.4 million Social Security beneficiaries, about 19.8 million Food Stamp recipients, and about 4.2 million military and Federal Civil Service retirees and survivors. Changes in the CPI also affect the cost of lunches for 26.5 million children who eat lunch at school, while collective bargaining agreements that tie wages to the CPI cover over 2 million workers.

Another example of how dollar values may be adjusted is the use of the CPI to adjust the Federal income tax structure. These adjustments prevent inflation-induced increases in tax rates, an effect called *bracket creep*.

Whose buying habits does the CPI reflect?

3

The CPI reflects spending patterns for each of two population groups: *All Urban Consumers (CPI-U)* and *Urban Wage Earners and Clerical Workers (CPI-W)*. The CPI-U represents about 87 percent of the total U.S. population. It is based on the expenditures of almost all residents of urban or metropolitan areas, including professionals, the self-employed, the poor, the unemployed, and retired persons, as well as urban wage earners and clerical workers. Not included in the CPI are the spending patterns of persons living in rural nonmetropolitan areas, farm families, persons in the Armed Forces, and those in institutions, such as prisons and mental hospitals.

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The CPI-W is based on the expenditures of households that are included in the CPI-U definition that also meet two requirements: more than one-half of the household's income must come from clerical or wage occupations, and at least one of the household's earners must have been employed for at least 37 weeks during the previous 12 months. The CPI-W's population represents about 32 percent of the total U.S. population and is a subset, or part, of the CPI-U's population.

Is the CPI a cost-of-living index?

4

The CPI frequently is called a cost-of-living index, but it differs in important ways from a complete cost-of-living measure. The Bureau of Labor Statistics (BLS or the Bureau) has for some time used a cost-of-living framework in making practical decisions about questions that arise in constructing the CPI. A cost-of-living index is a conceptual measurement goal, however, not a straightforward alternative to the CPI. A cost-of-living index would measure changes over time in the amount that consumers need to spend to reach a certain *utility level* or *standard of living*. Both the CPI and a cost-of-living index would reflect changes in the prices of goods and services, such as food and clothing, that are directly purchased in the marketplace; but a complete cost-of-living index would go beyond this to also take into account changes in other governmental or environmental factors that affect consumers' well-being. It is very difficult to determine the proper treatment of public goods, such as safety and education, and other broad concerns, such as health, water quality, and crime, that would comprise a complete cost-of-living framework.

Traditionally, the CPI was considered an upper bound to a cost-of-living index in that the CPI did

not reflect the changes in buying or consumption patterns that consumers would make to adjust to relative price changes. The ability to substitute means that the increase in the cost to consumers of maintaining their level of well-being tends to be somewhat less than the increase in the cost of the mix of goods and services they previously purchased.

Since January 1999, a geometric mean formula has been used to calculate most basic indexes within the CPI; in other words, the prices within most item categories (e.g., apples) are averaged using a geometric mean formula. This improvement moves the CPI somewhat closer to a cost-of-living measure, as the geometric mean formula allows for a modest amount of consumer substitution, as relative prices within item categories change.

Since the geometric mean formula is used only to average prices within item categories, it does not account for consumer substitution taking place between item categories. For example, if the price of pork increases compared to those of other meats, shoppers might shift their purchases away from pork to beef, poultry, or fish. The CPI formula does not reflect this type of consumer response to changing relative prices. In 2002, as a complement to the CPI-U and CPI-W, the BLS plans to produce a new index intended to more closely approximate a cost-of-living index by reflecting substitution among item categories. It is unlikely, however, that the difficult problems of defining living standards and measuring changes in the cost of their attainment over time ever will be resolved completely.

It is important to note that local area CPIs cannot be used to compare levels of living costs or prices across areas. (See answer to Question 18: “Can the CPIs for individual areas be used to compare living costs among areas?”)

Does the CPI measure my experience with price change?

5

Not necessarily. It is important to understand that BLS bases the market baskets and pricing procedures for the CPI-U and CPI-W on the experience of the relevant *average* household, not of any specific family or individual. It is unlikely that your experience will correspond precisely with either the national indexes or those for specific cities or regions.

For example, if you or your family spend a larger than average share of your budget on medical expenses, and medical care costs are increasing more rapidly than other items in the CPI market basket, your personal rate of inflation (or experience with price change) may exceed the CPI. Conversely, if you heat your home with solar energy, and fuel prices are rising more rapidly than other items, you may experience less inflation than the general population.

A national average reflects all the ups and downs of millions of individual price experiences. It seldom mirrors a particular consumer's experience.

How is the CPI market basket determined?

6

The CPI market basket is developed from detailed expenditure information provided by families and individuals on what they actually bought. For the current CPI, this information was collected from the Consumer Expenditure Survey over the 3 years 1993, 1994, and 1995. In each of these 3 years, more than 5,000 families from around the country provided information on their spending habits in a series of quarterly interviews. To collect information on frequently purchased items, such as food and personal care products, another 5,000 families in each of the 3 years kept diaries listing everything they bought during a 2-week period.

Altogether, more than 30,000 individuals and families provided expenditure information for use in determining the importance, or weight, of the over 200 item categories in the CPI index structure.

What goods and services does the CPI cover?



The CPI represents all goods and services purchased for consumption by the reference population (CPI-U or CPI-W). BLS has classified all expenditure items into more than 200 categories, arranged into eight major groups. Major groups and examples of categories in each are as follows:

- **FOOD AND BEVERAGES** (breakfast cereal, milk, coffee, chicken, wine, full service meals, and snacks)
- **HOUSING** (rent of primary residence, owners' equivalent rent, fuel oil; bedroom furniture)
- **APPAREL** (men's shirts and sweaters, women's dresses; jewelry)
- **TRANSPORTATION** (new vehicles, airline fares, gasoline; motor vehicle insurance)
- **MEDICAL CARE** (prescription drugs and medical supplies, physicians' services, eyeglasses and eye care; hospital services)
- **RECREATION** (televisions, cable television, pets and pet products, sports equipment; admissions)
- **EDUCATION AND COMMUNICATION** (college tuition, postage, telephone services; computer software and accessories)
- **OTHER GOODS AND SERVICES** (tobacco and smoking products, haircuts and other personal services; funeral expenses)

Also included within these major groups are various government-charged user fees, such as water and sewerage charges, auto registration fees, and

vehicle tolls. The CPI also includes taxes (such as sales and excise taxes) that are directly associated with the prices of specific goods and services. However, the CPI excludes taxes (such as income and Social Security taxes) not directly associated with the purchase of consumer goods and services.

The CPI does not include investment items, such as stocks, bonds, real estate, and life insurance. (These items relate to savings and not to day-to-day consumption expenses.)

For each of the more than 200 item categories, BLS has chosen samples of several hundred specific items within selected business establishments frequented by consumers, using scientific statistical procedures, to represent the thousands of varieties available in marketplace. For example, in a given supermarket, the Bureau may choose a plastic bag of golden delicious apples, U.S. extra fancy grade, weighing 4.4 pounds to represent the *apples* category.

How are CPI prices collected and reviewed?

Each month, BLS data collectors called economic assistants visit or call thousands of retail stores, service establishments, rental units, and doctors' offices, all over the United States, to obtain price information on the thousands of items used to track and measure price change in the CPI. These economic assistants record the prices of about 80,000 items each month. These 80,000 prices represent a scientifically selected sample of the prices paid by consumers for the goods and services purchased.

During each call or visit, the economic assistant collects price data on a specific good or service that was precisely defined during an earlier visit. If the selected item is available, the economic assistant records its price. If the selected item is no longer available, or if there have been changes in the quality or quantity (for example, eggs sold in packages of 8, when previously they had been sold

by the dozen) of the good or service since the last time prices were collected, the economic assistant selects a new item or records the quality change in the current item.

The recorded information is sent to the national office of BLS where commodity specialists, who have detailed knowledge about the particular goods or services priced, review the data. These specialists check the data for accuracy and consistency and make any necessary corrections or adjustments. These can range from an adjustment for a change in the size or quantity of a packaged item to more complex adjustments based upon statistical analysis of the value of an item's features or quality. Thus, the commodity specialists strive to prevent changes in the quality of items from affecting the CPI's measurement of price change.

How is the CPI calculated?

9

The CPI is a product of a series of interrelated samples. First, using data from the 1990 Census of Population, BLS selects the urban areas from which prices are to be collected and chooses the housing units within each area that are eligible for use in the shelter component of the CPI. The Census of Population also provides data on the number of consumers represented by each area selected as a CPI price collection area. Next, another sample (of about 16,800 families each year) serves as the basis for a Point-of-Purchase Survey that identifies the places where households purchase various types of goods and services.

Data from the Consumer Expenditure Survey conducted from 1993 through 1995, involving a national sample of more than 30,000 families, provided detailed information on their spending habits. This enabled BLS to construct the CPI market basket of goods and services and to assign each item in the market basket a weight, or importance, based on total family expenditures. The final stage in the

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sampling process is the selection of the specific detailed item to be priced in each outlet. This is done in the field, using a method called *disaggregation*. For example, BLS economic assistants may be directed to price *fresh whole milk*. Through the disaggregation process, the economic assistant selects the specific kind of fresh whole milk that will be priced in the outlet over time. By this process, each kind of whole milk is assigned a probability of selection, or weight, based on the amount the store sells. If, for example, Vitamin D, homogenized milk in half-gallon containers makes up 70 percent of the sales of whole milk; and the same milk in quart containers accounts for 10 percent of all whole milk sales, then the half-gallon container will be seven times as likely to be chosen as the quart container. After probabilities are assigned, one type, brand, and size container of milk is chosen by an objective selection process based on the theory of random sampling. The particular kind of milk that is selected by disaggregation will continue to be priced each month in that outlet.

In summary, the price movement measurement (Question 8) is weighted by the importance of the item in the spending patterns of the appropriate population group. The combination of all these factors gives a weighted measurement of price change for all items in all outlets, in all areas priced for the CPI.

How are taxes treated in the CPI?

10

Certain taxes are included in the CPI, namely, taxes that are directly associated with the purchase of specific goods and services (such as sales and excise taxes). Government user fees also are included in the CPI. For example, toll charges and parking fees are included in our transportation category; and an entry fee to a national park would be included as part of the admissions index. In addition, property taxes should be reflected indirectly in the BLS method of measuring the cost of the flow of services

provided by housing shelter, which we call *owners' equivalent rent*, to the extent that these taxes influence rental values. Taxes not directly associated with specific purchases, such as income and Social Security taxes, are excluded, as are the government services paid for through those taxes.

For certain purposes, one might want to define price indexes to include, rather than exclude, income taxes. Such indexes would provide an answer to a different question from the one for which the present CPI is relevant, and would be appropriate for different uses.

How do I read or interpret an index?

11

An index is a tool that simplifies the measurement of movements in a numerical series. Most of the specific CPI indexes have a 1982-84 reference base. That is, BLS sets the average index level (representing the average price level)—for the 36-month period covering the years 1982, 1983, and 1984—equal to 100. The Bureau measures changes in relation to that figure. An index of 110, for example, means there has been a 10-percent increase in price since the reference period; similarly an index of 90 means a 10-percent decrease. Movements of the index from one date to another can be expressed as changes in index points (simply, the difference between index levels), but it is more useful to express the movements as percent changes. This is because index points are affected by the level of the index in relation to its reference period, while percent changes are not.

In the following table, Item A increased by half as many index points as Item B between Year I and Year II. Yet, because of the different starting figures, both items had the same percent change; that is, prices advanced at the same rate. On the other hand, Items B and C show the same change in index points, but the percent change is greater for

Item C because of its lower starting value.

	<i>Item A</i>	<i>Item B</i>	<i>Item C</i>
Year I	112.5	225.0	110.0
Year II	121.5	243.0	128.0
Change in index points	9.0	18.0	18.0
Percent change	$9.0/112.5$ $\times 100 = 8.0$	$18.0/225.0$ $\times 100 = 8.0$	$18.0/110.0$ $\times 100 = 16.4$

Historically, BLS has updated its reference periods every 10 years or so.

Is the CPI the best measure of inflation?

12

Inflation has been defined as a process of continuously rising prices, or equivalently, of a continuously falling value of money.

Various indexes have been devised to measure different aspects of inflation. The CPI measures inflation as experienced by consumers in their day-to-day living expenses; the Producer Price Index (PPI) measures inflation at earlier stages of the production and marketing process; the Employment Cost Index (ECI) measures it in the labor market; the BLS International Price Program measures it for imports and exports; and the Gross Domestic Product Deflator (GDP-Deflator) measures combine the experience with inflation of governments (Federal, State and local), businesses, and consumers. Finally, there are specialized measures, such as measures of interest rates and measures of consumers' and business executives' inflation expectations.

The *best* measure of inflation for a given application depends on the intended use of the data. The CPI is generally the best measure for adjusting payments to consumers when the intent is to allow consumers to purchase, at today's prices, a market basket of goods and services equivalent to one that they could purchase in an earlier period. It is also the best measure to use to translate retail sales and hourly or weekly earnings into real, or inflation-free, dollars.

Which index is the *official CPI* reported in the media?

13

Each month, BLS releases thousands of detailed CPI numbers to the media. However, the media usually focuses on the broadest, most comprehensive CPI. This is *the Consumer Price Index for All Urban Consumers (CPI-U) for the U.S. City Average for All Items, 1982-84=100*. These data are reported on either a seasonally adjusted, or not seasonally adjusted, basis. Often, the media will report some, or all, of the following:

- Index level, not seasonally adjusted (For example, August 1997 = 167.1.)
- 12-month percent change, not seasonally adjusted (For example, August 1998 to August 1999 = 2.3 percent.)
- 1-month percent change on a seasonally adjusted basis (For example, from July 1999 to August 1999 = 0.3 percent.)
- Annual rate of percent change so far this year (For example, from December 1998 to August 1999, if the rate of increase over the first 8 months of the year continued for the full year, after the removal of seasonal influences, the rise would be 3.1 percent.)
- Annual rate based on the latest seasonally adjusted 1-month change (For example, if the July 1999 to August 1999 rate continued for a full 12 months, the rise, compounded, would be 3.7 percent.)

What index should I use for escalation?

14

The decision to employ an escalation mechanism, as well as the choice of the most suitable index, is up to the user. When drafting the terms of an escalation provision for use in a contract to adjust future payments, both legal and statistical questions can arise. While BLS cannot help in any matters

relating to legal questions, it does provide basic technical and statistical assistance to users who are developing indexing procedures.

Some examples of technical or statistical guidelines from BLS follow:

- BLS strongly recommends using indexes unadjusted for seasonal variation (i.e., not seasonally adjusted indexes) for escalation. (See answer to Question 15, for a further explanation of seasonally adjusted indexes and why BLS doesn't recommend seasonally adjusted indexes for use in escalation.)
- BLS recommends using national or regional indexes for escalation, due to the volatility of local indexes. (See answer to Question 16, for an explanation of this point.)

If you have further questions, the Bureau has prepared a detailed report, *Using the Consumer Price Index for Escalation*. This information is also available on the CPI home page at <http://stats.bls.gov/cpihome.htm> or write or call the nearest BLS information office listed in the answer to Question 22. You can also call the BLS national office at (202) 691-7000.

When should I use seasonally adjusted data?

15

By using seasonally adjusted data, economic analysts and the media find it easier to see the underlying trend in short-term price change. It is often difficult to tell from raw (unadjusted) statistics whether developments between any 2 months reflect changing economic conditions or only normal seasonal patterns. Therefore, many economic series, including the CPI, are seasonally adjusted to remove the effect of seasonal influences. Seasonal influences are those that occur at the same time and in about the same magnitude every year. They include price movements resulting from changing climatic conditions, production cycles, model changeovers, and holidays.

BLS annually re-estimates the factors that are used to seasonally adjust CPI data, and seasonally adjusted indexes that have been published earlier are subject to revision for up to 5 years after their original release. Therefore, unadjusted data are more appropriate for escalation purposes.

What area indexes are published, and how often

16

Besides monthly publication of the national (or U.S. City Average) CPI-U and CPI-W, monthly indexes are published for the four regions—Northeast, Midwest (formerly North Central), South, and West. Monthly indexes are also published for urban areas classified by population size—all metropolitan areas over 1.5 million, metropolitan areas smaller than 1.5 million, and all nonmetropolitan urban areas. Indexes also are available within each region, cross-classified by area population size. For the Northeast and West, however, indexes for nonmetropolitan areas are not available. BLS also publishes indexes for 26 local areas. Local area indexes are byproducts of the national CPI program. Each local index has a much smaller sample size than the national or regional indexes and is, therefore, subject to substantially more sampling and other measurement error. As a result, local area indexes are more volatile than the national or regional indexes. Therefore, BLS strongly urges users to consider adopting the national or regional CPIs for use in escalator clauses. If used with caution, local area CPI data can illustrate and explain the impact of local economic conditions on consumers' experience with price change. Local area data are available on the following schedule:

BLS publishes three major metropolitan areas monthly:

Chicago-Gary-Kenosha, IL-IN-WI

Los Angeles-Riverside-Orange County, CA

New York-Northern NJ-Long Island, NY-NJ-CT-PA

Data for an additional 11 metropolitan areas are published every other month [on an odd (January, March, etc.) or even (February, April, etc.) month schedule] for the following areas:

Atlanta, GA	even	Miami-Fort Lauderdale, FL	even
Boston-Brockton- Nashua, MA-NH- ME-CT	odd	Philadelphia- Wilmington- Atlantic City, PA- NJ-DE-MD	even
Cleveland-Akron, OH	odd	San Francisco-Oak- land-San Jose, CA	even
Dallas-Fort Worth, TX	odd	Seattle-Tacoma- Bremerton, WA	even
Detroit-Ann Arbor- Flint, MI	even	Washington- Baltimore, DC- MD-VA-WV	odd
Houston- Galveston- Brazoria, TX	even		

(Note: The designation even or odd refers to the month during which the area's price change is measured. Due to the time needed for processing, data are released 2 to 3 weeks into the following month.)

Data are published for another group of 12 metropolitan areas on a semiannual basis. These indexes, which refer to the arithmetic average for the 6-month periods from January through June and July through December, are published with release of the CPI for July and January, respectively, in August and February for:

Anchorage, AK	Minneapolis-St. Paul, MN-WI
Cincinnati-Hamilton, OH-KY-IN	Pittsburgh, PA
Denver-Boulder-Greely, CO	Portland-Salem, OR-WA
Honolulu, HI	St. Louis, MO-IL
Kansas City, MO-KS	San Diego, CA
Milwaukee-Racine, WI	Tampa-St. Petersburg- Clearwater, FL.

What area CPI should I use, if there is no CPI for the area in which I live?

Although BLS can provide some guidance on this question, users must make the final decision.

As noted in the answers to Questions 14 and 16, BLS strongly urges the use of the national or regional CPIs for use in escalator clauses. These indexes are more stable and subject to less sampling and other measurement error than are local area indexes and, therefore, more statistically reliable.

Can the CPIs for individual areas be used to compare living costs among areas?

18

No, an individual area index measures how much prices have changed over a specific time period in that particular area. It does not show whether prices or living costs are higher or lower in that area relative to another. In general, the composition of the market basket and relative prices of goods and services in the market basket during the expenditure base period vary substantially across areas.

The following illustration shows that while Area B has higher prices than Area A, the price change in Area A has been greater than in Area B. The CPI measures the rates of change in prices, rather than the level of prices.

	<i>Base Period</i>		<i>Current Period</i>	
	<i>Price</i>	<i>Index</i>	<i>Price</i>	<i>Index</i>
Area A	\$0.30	100	\$0.55	183
Area B	0.60	100	0.90	150

What types of data are published?

19

There are many types of data published as outputs from the CPI program. The most popular are indexes and percent changes. Requested less often are relative importance (or relative expenditure weight) data, base conversion factors (to convert from one CPI reference period to another), seasonal factors (the monthly factors used to convert unadjusted indexes into seasonally adjusted indexes), and average food and energy prices. Index and price change data are available for the U.S. city

average (or national average), for various geographic areas (regions and metropolitan areas), for national population-size classes of urban areas, and for cross-classifications of regions and size classes. Indexes for various groupings of items are available for all geographic areas and sizes classes.

There are individual indexes available for more than 200 items (e.g., apples, men’s shirts, airline fares) and over 120 different combinations of items (e.g., fruits and vegetables, food at home, food and beverages, and All Items), at the national or U.S. city average level. BLS classifies consumer items into eight major groups: Food and beverages, housing, apparel, transportation, medical care, recreation, education and communication, and other goods and services. (Some indexes are available as far back as 1913.)

Each month, indexes are published along with short-term percent changes, the latest 12-month change and, at the national item and group level, unadjusted and (where appropriate) seasonally adjusted percent changes (and seasonal factors), together with annualized rates of change. These annualized rates indicate what the rate of change would be for a 12-month period, if a price change measured for a shorter period continued for a full 12 months.

The answer to Question 16 provides information about the areas and size classes for which indexes are published. For areas, BLS publishes less-detailed groupings of items than it does for the national level. The following table illustrates this point:

<p>Atlanta, GA</p> <p>All items</p> <ul style="list-style-type: none"> Food and beverages Food Food at home 	<p>U.S. City Average</p> <p>All items</p> <ul style="list-style-type: none"> Food and beverages Food Food at home <ul style="list-style-type: none"> Cereals and bakery products Cereals and cereal products Flour and prepared flour mixes Breakfast cereal
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- Rice, pasta, and corn meal
 - Rice
- Bakery products
 - Bread
 - White bread
 - Other breads
 - Fresh biscuits, rolls, muffins
 - Cakes, cupcakes, and cookies
 - Fresh cakes and cupcakes
 - Cookies
 - Other bakery products
 - Fresh sweetrolls, coffeecakes, and doughnuts
 - Crackers, bread, and cracker products
 - Frozen and refrigerated bakery products, pies, tarts, turnovers

Annual average indexes and percent changes for these groupings are published at the national and local levels.

Semiannual average indexes and percent changes for some of these groupings are also published.

Each month, BLS publishes average price data for some food items (for the U.S. and 4 regions) and for some energy items (for the U.S., 4 regions, 3 size-classes, 10 cross-classifications of regions and size-classes, and 14 metropolitan areas).

What are some limitations of the CPI?

20

The CPI is subject to both limitations in application and limitations in measurement.

Limitations in application

The CPI may not be applicable to all population groups. For example, the CPI-U is designed to measure the experience with price change of the U.S. urban population and, thus, may not accurately reflect the experience of people living in rural areas. Also, the CPI does not produce official

estimates for the rate of inflation experienced by subgroups of the population, such as the elderly or the poor. (BLS does produce and release an experimental index for the elderly population. However, because of the significant limitations of this experimental index, it should be interpreted with caution.)

As noted in the answer to Question 18, the CPI cannot be used to measure differences in price levels or living costs between one place and another; it measures only time-to-time changes in each place. A higher index for one area does not necessarily mean that prices are higher there than in another area with a lower index. It merely means that prices have risen faster since their common reference period.

The CPI cannot be used as a measure of total change in living costs, because changes in these costs are affected by factors (such as social and environmental changes and changes in income taxes) that are beyond the definitional scope of the CPI and so are excluded.

Limitations in measurement

Limitations in measurement can be grouped into two basic types, sampling errors and nonsampling errors.

Sampling errors. Because the CPI measures price change based on a sample of items, the published indexes differ somewhat from what the results would be if actual records of *all* retail purchases by everyone in the index population could be used to compile the index. These estimating or sampling errors are limitations on the precise accuracy of the index, not mistakes in index calculation. The CPI program has developed measurements of sampling error, which are updated and published annually in the *CPI Detailed Report*. An increased sample size would be expected to increase accuracy, but it would also increase CPI production costs. The CPI sample design allocates the sample in a way that maximizes

the accuracy of the index, given the funds available.

Nonsampling errors. These errors occur from a variety of sources. Unlike sampling errors, they can cause persistent bias in index measurement. Nonsampling errors are caused by problems of price data collection, logistical lags in conducting surveys, difficulties in defining basic concepts and their operational implementation, and difficulties in handling the problems of quality change. Nonsampling errors can be far more hazardous to the accuracy of a price index than sampling errors. BLS expends much effort to minimize these errors. Highly trained personnel ensure comparability of quality of items from period to period (Question 8), and collection procedures are extensively documented. The CPI program has an ongoing research and evaluation program, to identify and implement improvements in the CPI.

Will the CPI be updated or revised in the future?

21

Yes. The CPI will need revisions, as long as there are significant changes in consumer buying habits or shifts in population distribution or demographics. The Bureau, by developing annual Consumer Expenditure Surveys and Point-of-Purchase Surveys, has the flexibility to monitor changing buying habits in a timely and cost-efficient manner. In addition, the census conducted every 10 years by the Department of Commerce provides information that enables the Bureau to reselect a new geographic sample that accurately reflects the current population distribution and other demographic factors.

As a matter of policy, BLS is continually researching improved statistical methods. Thus, even between major revisions, further improvements to the CPI are made. For example, until recently, the Bureau would continue to price the brand-name version of a prescription drug even after it lost its patent protection, if the brand-name drug was still sold in the selected outlet. Starting in January 1995, BLS changed this

policy. Now, 6 months after a drug loses its patent protection, a unique item to be priced is reselected from all therapeutically equivalent drugs (including the original) sold in the selected retail outlet. This gives generic versions of the drug a chance to be selected as a substitute. BLS waits until 6 months after the patent expires to give the emerging generic drugs time to gain market share, because the chance of selection is proportional to the sales of each version of the drug in the retail outlet. This new procedure provides a better reflection of consumers' experience with prescription drug prices, because many consumers switch to generic versions of drugs, as they become available.

How can I get CPI information?

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CPI information is available from BLS electronically, through subscriptions to publications, and via telephone and fax, through automated recordings. Information specialists are also available in the national and regional offices to provide assistance.

Electronic access to CPI data

BLS on the Internet. Through the Internet, BLS provides free, easy, and continuous access to almost all published CPI data and press releases. The most recent month's CPI is made available immediately at the time of release. Additionally, a database called LABSTAT, containing current and historical data for the CPI, is accessible. Data and press releases from other BLS surveys are also available. This material is accessible via the World Wide Web (WWW) and File Transfer Protocol (FTP), as described below. Send e-mail to *labstat.helpdesk@bls.gov* for help in using any of these systems.

World Wide Web. The BLS website at *http://stats.bls.gov* provides easy access to LABSTAT, as well as links to program-specific homepages.

In addition to data, the CPI homepage at <http://stats.bls.gov/cpihome.htm> provides other CPI information. This includes a brief explanation of methodology, frequently asked questions and answers, contacts for further information, and explanations of how the CPI handles special items, like medical care and housing. In addition, CPI press releases and historical data for metropolitan areas can be accessed by linking to the regional office homepages from the main BLS website listed above.

FTP. This tool provides access to CPI LABSTAT data, as well as documentation and press release files organized in hierarchical directories. Connect to stats.bls.gov using FTP, log on as ANONYMOUS and use your complete Internet e-mail address as the password.

Subscriptions to CPI publications

Summary data. Free, monthly, 2-page publication containing 1- and 12-month percent changes for selected U.S. city average Consumer Price Index for All Urban Consumers (CPI-U) and Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) index series. The *all items* index data for each local area are also included. To be added to the mailing list, write to: Office of Publications, Bureau of Labor Statistics, 2 Massachusetts Avenue, NE, Room 2850, Washington, DC 20212-0001, or call (202) 691-5200 or any of the BLS Regional Economic Analysis and Information Offices listed below.

CPI Detailed Report. Most comprehensive report of the Consumer Price Index. This publication may be ordered by writing to: New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA, 15250-7954 or by calling (202) 512-1800. Subscriptions cost \$31 per year.

Monthly Labor Review (MLR). The *MLR* provides selected CPI data included in a monthly summary

of BLS data and occasional articles and methodological descriptions too extensive for inclusion in the *CPI Detailed Report*. The *MLR* costs \$31 per year. This publication may be ordered by writing to: New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA, 15250-7954 or by calling (202) 512-1800. The Internet website at <http://stats.bls.gov/opub/mlr/mlrhome.htm> also provides recent issues of the *MLR*.

Recorded CPI data

Summary CPI data are provided 24 hours a day on recorded messages. Detailed CPI information is available by calling (202) 691-5200. A touch-tone telephone is recommended, as this system allows the user to select specific indexes from lists of available data.

Recorded summaries of CPI are also available by calling any one of the metropolitan area CPI hotlines listed below. These hotline summaries typically include data for the U.S. city average, as well as the specified area. Recordings are approximately 3 minutes in length, do not require a touch-tone telephone, and are available 24 hours a day, 7 days a week.

Area Hotline Numbers

Anchorage
(907) 271-2770

Atlanta
(404) 331-3415

Baltimore
(410) 962-4898

Boston
(617) 565-2325

Chicago
(312) 353-1883

Cincinnati
(513) 684-2349

Cleveland
(216) 522-3852

Dallas
(214) 767-6970

Denver
(303) 844-1726

Detroit
(313) 226-7558

Honolulu
(808) 541-2808

Houston
(713) 718-3753

Indianapolis
(317) 226-7885

Kansas City
(816) 426-2481

Los Angeles
(310) 235-6884

Milwaukee
(414) 276-2579

Minneapolis-St. Paul
(651) 290-3996

New York
(212) 337-2406

Philadelphia
(215) 565-3948

Pittsburgh
(412) 644-2900

Portland
(503) 231-2045

St. Louis
(314) 539-3581

Salt Lake City
(801) 485-6582

San Diego
(619) 557-6538

San Francisco
(415) 975-4350

Seattle
(206) 553-0645

Washington, DC
(202) 691-6994

(202) 691-5200
(410) 692-4898

Other sources of CPI data

Technical information is available during normal working hours, Monday through Friday (Eastern Time), by calling (202) 691-7000 or any of the regional offices listed below.

Fax-on-Demand. A wide variety of BLS information and data, including CPI, are available from the BLS *Ready Facts* catalog via fax-on-demand. CPI documents from *Ready Facts* that are available around the clock include the monthly CPI press release, selected national, regional and metropolitan area historical summaries, and some technical information. The latest CPI information is posted during the morning of release day. To have the latest *Ready Facts* catalog sent to you, call (202) 691-6325, then follow instructions. Each information office also has a fax system in place; these systems include all information available from the national catalog, in addition to region-specific information on the CPI. Phone and fax-on-demand numbers for the eight information offices are:

Office	Fax-on-Demand	Telephone
Washington, DC Bureau of Labor Statistics Office of Prices and Living Conditions 2 Massachusetts Avenue, NE Washington, DC 20212-0001	(202) 691-6325	(202) 691-7000
Boston Bureau of Labor Statistics Economic Analysis and Information JFK Federal Bldg., E-310 Boston, MA 02203	(617) 565-9167	(617) 565-2327
Philadelphia Bureau of Labor Statistics Economic Analysis and Information The Curtis Center-Suite 610 East 170 South Independence Mall West Philadelphia, PA 19106-3305	(215) 597-5153	(215) 597-3282

Office	Fax-on-Demand	Telephone
New York Bureau of Labor Statistics Economic Analysis and Information 201 Varick Street, Room 808 New York, NY 10014-4811	(212) 337-2412	(212) 337-2400
Atlanta Bureau of Labor Statistics Economic Analysis and Information 61 Forsyth Street, SW Room 7T50 Atlanta, GA 30303	(404) 331-3403	(404) 331-3415
Chicago Bureau of Labor Statistics Economic Analysis and Information 230 S. Dearborn Street, 9 th Floor Chicago, IL 60604	(312) 353-1880	(312) 353-1880
Kansas City Bureau of Labor Statistics Economic Analysis and Information 1100 Main Street, Suite 600 Kansas City, MO 64105-2112	(816) 426-3152	(816) 426-2481
Dallas Bureau of Labor Statistics Economic Analysis and Information 525 Griffin Street, Room 221 Dallas, TX 75202	(214) 767-9613	(214) 767-6970
San Francisco Bureau of Labor Statistics Economic Analysis and Information P.O. Box 193766 San Francisco, CA 94119-3766	(415) 975-4567	(415) 975-4350

Historical tables. These include all published indexes for each of the detailed CPI components. They are available via the Internet, by calling (202) 691-7000 in the national office, or by contacting any of the information offices listed above.

Descriptive publications. These publications describe the CPI and ways to use it. They include simple fact sheets discussing specific topics about the CPI, this pamphlet with its broad, nontechnical overview of the CPI in a question and answer format, and a quite technical and thorough description of the CPI and its methodology. These publications are available upon request by calling (202) 691-7000, and many are included on the CPI homepage on the Internet.

Special publications. Also available are various special publications, such as *Relative Importance of Components in the Consumer Price Index*, and materials describing the annual revisions of seasonally adjusted CPI data. For more information, call (202) 691-7000.

Further information may be obtained from the Office of Prices and Living Conditions, Bureau of Labor Statistics, 2 Massachusetts Avenue, NE, Room 3615, Washington, DC, 20212-0001, telephone (202) 691-7000, or by calling any of the regional economic analysis and information offices listed above.